

THE BUTTERFLIES OF THE ANDAMANS AND NICOBARS

BY

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(*Indian Army, retired list.*)

(*With five plates*)

These notes were nearing completion when War broke out in 1939 and they were put to one side. With the return of opportunity in the winter of 1945-46, I was able to complete the rearrangement of my collection, which is now the property of the British Museum and also to write up the *Lycaenidae* and *Hesperiidae* and thus finish my task.

No general paper on the butterflies of the Andamans and Nicobars has appeared since the series of papers published by Woodmason and de Nicéville in various issues of the *Journal of the Asiatic Society of Bengal* for the years 1880-82. The number of forms described therein is 133. The present paper deals with 268 forms and is based on a collection of 3,000 set and 1,000 unset specimens, the result of eight years collecting while I was Chief Commissioner of the Islands during the years 1923 to 1931. Three months before I left Port Blair on retirement I had the great good fortune to receive a visit from Brigadier W. H. Evans, who worked several of the localities in the Great and Little Andaman and also accompanied me on a trip round the Nicobars. As a result of work in the field and of examination of my collection Brigadier Evans was able to name one new species and 22 new races and to restore the names of a few races which had latterly been sunk and to include this new information in the second edition of his *Identification of Indian Butterflies*, then in preparation for the press. Though progress has been made, much remains for other collectors in these islands to achieve, especially among the *Hesperiidae*, which through a foolish prejudice I neglected until my last year in Port Blair. Again certain areas remain completely or partially unworked, among the former Narkondam, Barren Island, the Brothers, the Sisters and in the Nicobars, Bompoka; among the latter, the Cocos, North Sentinel, the Little Andaman and, in the Nicobars, Tillanchong. No attempt was made by me to study the food plants or the life history of purely local forms, but the unusual length of my stay in the Islands was of material help in determining the comparative rarity of different butterflies and in deciding whether some should not be regarded as occasional migrants or even storm-driven refugees.

The Andamans and Nicobars lie on a curve between Cape Negrais in Burma and the west end of Sumatra. The Great Andaman may be considered as one large island though actually divided by narrow tidal creeks into five parts, the North, Middle and South Andamans, Baratang and Rutland. This mass is 170 miles long and has an average width of 15 miles. Round it lie numerous

small islands of which only the Cocos, 20 miles to the north and North Sentinel, 25 miles to the west are sufficiently far away to merit special attention from the butterfly collector. The Gt. Andaman is deeply indented by bays and creeks and is almost everywhere hilly. The highest point, Saddle Peak, 2,400 ft., is in the North Andaman, elsewhere ranges or isolated peaks rise to 1,000 or 1,500 ft. Except where cleared by man or where a rare extrusion of serpentine rock on the summit of Saddle Peak or in Rutland or the Cinque Islands forbids tree growth, the entire land surface is covered with tropical forest and open spaces are only to be met with along the banks of a few streams, as in the Betapur, Bomlungta and Rongat valleys of the Middle Andaman or the Social River running through the Karen village We Bi. The forests start with mangrove, then cane brakes and evergreen forest on alluvial land, then on the lower and more gentle slopes are found deciduous species, then on steeper slopes more evergreens occur with finally ringalls and scrub jungle clothing a few of the highest summits. Round Port Blair there are some 20,000 acres of cleared land comprising ricefields, coconut and other plantations and grazing land, mixed with scattered patches of secondary jungle crossed at the foot of the bigger hills by nullahs with small perennial streams holding the patches of moist sand dear to tropical butterflies and their collectors. Rain to an average total of 150 inches may be expected throughout the months May to December. During the *dhuṣṣ kala* or sunny season of January to April the streams dry up and the land where cleared turns to iron, though sufficient humidity remains inside the forest to make forest fires unknown. This short and incomplete dry period prevents most of the seasonal dimorphism common on the Indian continent. Dimorphism occurs mainly among prairie forms such as *Melanitis ismene*, *Mycalis visala*, *Precis almana*, *Hypolimnas bolina*, *Eurema hecabe* and the two *Ceporas* and to a less extent *Ixias pyrene*, *Euploea andamanensis*, *Neptis hylas* and *Neptis jumba* in the Andamans. It is absent in the Nicobars.

Narkondam and Barren Island lie some 60 miles to the east of the Gt. Andaman. The former with its unique hornbill may also possess some unique butterfly. Barren Island now well wooded was barren indeed when seen by Blair in 1788 (?) but nevertheless deserves a visit from an entomologist.

A channel of 30 miles width separates the Great from the Little Andaman, a low flat island 350 square miles in extent. Several landings at Bumila Creek in the north and Hut Bay on the east produced numerous specimens of a very distinct local race of *Euploea andamanensis* and three pairs of a lovely grey blue race of *Parthenos sylvia* and a more prolonged search might produce other exciting finds.

The stream flowing into the S. end of Hut Bay should be worked. Extensive air photographs of the Little Andaman are now in existence and will considerably aid any ground exploration of the island. Between Little Andaman and Car Nicobar lies the Ten Degree Channel, 75 miles wide. The Nicobar Islands are scattered and form three groups. Car Nicobar, area 50 square miles, lies isolated in the North. 45 miles to the southward begins the Central Group which includes Kamorta, Nankauri, Trinkat and Kachal fairly close to one

another with Teresa, Bompoka, Chaura and Tillanchong a little further away. These total some 250 to 300 square miles, After 30 miles of open sea we come to the Southern Group, Pulo Milo, L. Nicobar, Kondul and Gt. Nicobar. This group somewhat resembles the Gt. Andaman in physical features and vegetation but the mountains are grander and more abrupt, and the forest is more tropical, and the streams are real rivers.

The dangerous reefs surrounding this group make landing often impossible even on the lee side, and proximity to the Equator brings almost daily rain. Many of my visits have been unhappy failures as far as butterflies were concerned owing to rough weather. To the forbidding Gt. Nicobar with its barrier of surf, its deserted shores and gloomy cloud capped mountains, Car Nicobar offers the greatest contrast. It is a vast coconut plantation with occasional patches of light jungle, swamp or *lalang* grass. A comparatively dense population of 150 to the square mile lives happily without causing undue disturbance to plant life and the flora remains sufficiently varied to produce plenty of butterflies of numerous species. The Central Nicobars range from the high forest of Kachal to the bare *lalang* downs of Kamorta. Generally speaking wherever there is a little flat land behind the beach there is a rough plantation of coconut, pandanus and lesser fruit trees through which the collector can wander in search of some small stream descending from the hills that form the background. Such a stream exists at Kondul and the collector should make straight for its upper pools as soon as he sets foot ashore. A much larger and better stream I only found in my last year. It descends from Mt. Thuillier to the deserted bay of Laful on the east of Gt. Nicobar. Its valley is full of good things. Often the newcomer lands to find the shore is merely a narrow sandbank with impassable mangrove swamp behind. This was particularly the case on the Little Andaman. The result was disappointment and wasted effort so far as butterfly collecting went, though the extensive air survey of the Little Andaman made during the war will no doubt lessen the difficulties of the explorer in the future. Time is scheduled and programmes must be kept, so the collector has had to return to the ship to hope for better luck or a more seasonable landing hour at the next anchorage. All these islands should of course be worked by collectors as Boden Kloss worked them, in a privately owned craft. Butterfly collecting and a Government steamer programme are necessarily a bad fit.

The fauna of the Andamans is held to be more closely allied to that of Burma than of India, while the fauna of the Nicobars has some affinities with that of Malaya. The butterflies follow these general lines, but with many vagaries of distribution for which one cannot account. Why are certain common species found in the islands while others equally common are absent although their food plant is available? Many large genera have no representative. Of the six species of *Precis* three occur in both groups. Why not any of the other three? Of the very large genus *Amblypodia* not one form occurs in the Nicobars and only one commonly in the Andamans. On the other hand some genera are in great strength, e.g. *Appias*, *Eurema* (*Terias*) and *Euploea*. Among *Lycaenidae* there are no less than 17 forms of *Nacaduba* and 10 of *Jamides*. Then again several butterflies extremely

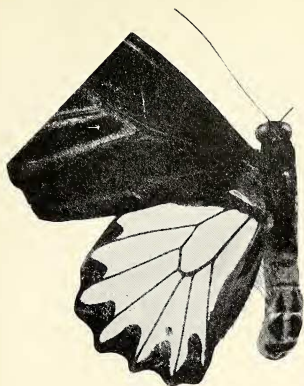
common in India are extremely rare in the Andamans but do occur regularly, such are *D. chrysippus*, *L. boeticus* and *Appias olterna*. Again the Gt. Andaman had been industriously worked by Wimberley, de Roepstorff, Woodmason and others, 50 years and more ago and by several collectors since, but it was not till 1927 that the conspicuous *Yoma sabrina vasuki* was observed. In that year it was extremely numerous for several months in the Middle and South Andamans and must have bred there for it was repeatedly taken quite fresh. Since then it has not been seen. During my first four years I saw and took only one *Appias albina darada*. In 1927 this species was to be taken by the hundred. During the next four years I never saw it. Some seven or eight of the species recorded in this paper are almost certainly stragglers and indeed some of the individuals among them were captured after heavy gales. Some forms have only been taken in areas which are inexplicably small. *Heliophorus epicles* is common at Bomlungta in December and January but has been seen nowhere else. It is identical in appearance with the same species occurring in far off Kumaon. *Artipe eryx*, a rare form, also occurs only at Bomlungta. It is impossible to understand why these two butterflies are not found throughout the Gt. Andaman. *Jamides kankena pseudelpis* and *Eurema andersoni andamana* fly in great numbers at Bomlungta in December. They are extremely rare in the S. Andaman. One interesting Malayan form, *Hypolimnas antilope anomala* is found only in one small locality on Car Nicobar, the furthest of the Nicobars from Malaya. *Danaus affinis malayana* has been taken only in one small locality in the Central Nicobars where there are considerable areas suitable for it. Some of the insects recorded by previous collectors were never seen by me in eight years. Of these *Byasa sambilanga* is not in the British museum. *Neptis jumba binghami*, *N. ebusa* and *Artipe eryx* I never saw, nor the females of *N. nar* and *Doleschallia celinde continentalis*. The female of *Appias panda chrysea* evaded me for 95 out of the 96 months I was in the Islands. During my last month I took three. A female specimen of *E. schreiberi tisamenus* was brought me as a sort of visiting card by Bhagwan Din my local collector, when I first engaged him in 1923. It was damaged. I kept the wings of the right side. In the next seven and a half years neither he nor I caught or saw another.

The study of the local sub-species and their territorial limits has proved very interesting. It has been said above that for some unascertained reason certain species in the Gt. Andaman are very severely localized. In spite of this there is no instance of any species in this homogeneous area developing different races. For this argument I include with the Gt. Andaman all those appurtenances known as the Ritchie Archipelago, the Labyrinth Islands and the Cinques, each of these islands lying within six miles of some other or of the main Andaman. But when the sea barrier increases to 25 miles it is enough to produce in a few instances very marked races. Thus *Euploea andamanensis* has an undoubted and most distinct race in the Little Andaman and another not so distinct but none the less constant race in the North Sentinel. These two islands are respectively 30 and 25 miles distant from the Gt. Andaman. Again in the Little Andaman *Parthenos sylvia* is not

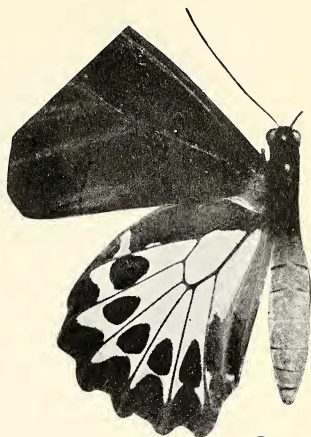
moss-green as in Port Blair but a lovely powder blue. Both these islands have for various good reasons been very imperfectly worked and more races should be forthcoming. I am inclined to think that one or two local races may occur in the Cocos Islands and there may also be more seasonal dimorphism there. I paid a one day visit to the Gt. Cocos in October 1930 and took or observed some 40 forms all normal. The *Pieridae* seemed specially numerous. Novelties may reasonably be expected from Narcondam and possibly Barren Island. In the Nicobars the greater distances and depths of water between islands have led to pronounced localization. Many species are found only in one island or one group, while other species common to several islands have developed as many as three races each. Previous writers such as Bingham were content to label an insect "Andamans" or "Nicobars", without further detail. Consequently Colonel Bingham in the belief that branded and unbranded males of *Euploea scherzeri* were to be found flying together in the same locality treated them as one race whereas in fact unbranded males are only found in the Southern Nicobars and belong without doubt to a constant and well defined race—*simulatrix*, so named by Woodmason and de Nicéville.

A little should be said about hunting seasons and hunting grounds in the Gt. Andaman. July and August are very poor months with often not a single butterfly on the wing. By December things have brightened up and several *Lycaenidae* have their only or at least their larger brood then. *Bomlungta* should without fail receive attention during December. For the rest March to early June is, as elsewhere, the great catching time. All the lesser used roads well away from the cleared settlement should be worked, especially those to Rangachang, Maimyo, and between Austinabad and Birchganj. Where these roads cross streams much may be done. At Mt. Harriet in April a walk round the flowering hedges near the bungalows once an hour will each time produce a few good *Lycaenidae*. The walk to Black Rock has its own special *Nymphalidae* and the paths from that walk down to Wimberleyganj should be worked. Hill tops other than Mt. Harriet I found disappointing, neither Saddle Peak nor Mt. Ford produced anything. A collector should be sent occasionally to a forest extraction camp with orders to watch elephant droppings and sap from newly felled trees. *Kallima* are attracted by a whiskey and soda or a glass of claret at a picnic. To conclude this introduction it should be said that care is necessary to avoid damage from the prevailing damp of the region. Papered specimens should be dried out before being put away. Store boxes need watching for psocids. I avoided general damp by an electric light bulb in the cabinet. Set butterflies are apt to spring, this is specially the case with the *Euploea*s. I must not conclude without expressing my cordial thanks to Dr. Corbett and his staff at the British Museum for their kindness and courtesy, and to Brigadier Evans for his unstinted help and advice.

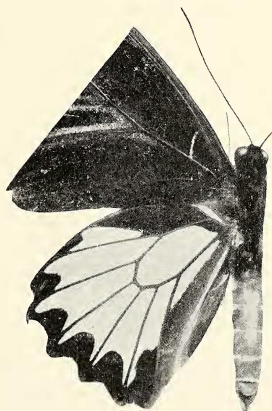
Note.—The paper is accompanied by five uncoloured plates designed mainly to exemplify the constancy of local races, especially among the *Euploea*s. Coloured plates would bring out the differences more clearly. Several other species exhibiting distinct



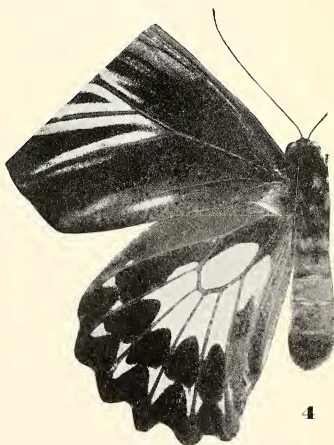
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|-----|----------------|---------------|---------------------|------|---|
| (1) | <i>Troides</i> | <i>helena</i> | <i>heliconoides</i> | M. | ♂ |
| (2) | " | " | " | " | ♀ |
| (3) | " | " | <i>ferrari</i> | Tyt. | ♂ |
| (4) | " | " | " | " | ♀ |

localized races have been omitted, such as *Neptis hylas* and *Curetis saronis*, each with three races.

(The order and nomenclature in the following list is that of Evans's Indian Butterflies, second edition.)

A. PAPILIONIDAE

A1. TROIDES.

*1 (♂) *helena heliconoides* ♂ and ♀ v. *aphnea* Jord, and Andaman, N. R. March to May and September. Flies high most of the day near the broadleaved *Sterculia villosa* but may be taken early and late near the ground. Good places are the roads to Rangachang and Maimyo and the path to Black Rock on Mt. Harriet.

* (η) *helena ferrari* Tyt. Gt. & L. Nicobar and Kondul. Females typically with whitish stripes upf. It is strange that this well-marked race was never recorded by de Rosopstorff, Man and other entomologists in the nineteenth century and was first taken at Kondul in 1926. There are only eight specimens in collections. On landing at the usual beach at Kondul the collector should turn left along the shore for three hundred yards, over a small rocky promontory and on reaching a small stream just beyond turn right handed and he should soon see one, possibly two *ferrari* high above his head. He will be lucky to get one and luckier still if that is a male. At perhaps my fifth visit to Kondul I took two males. The little valley of four or five acres extent watered by this stream contains many interesting blues and skippers especially at the very top. In the course of a dozen landings and explorations of the G. and L. Nicobars I only saw two other individual *ferrari*.

A2. TROS.

6. (γ). *coon sambilanga* Doh. I searched the B. M. and Tring and Calcutta museums and found only one at the last named. It bore a Gt. Nicobar label. In spite of a diligent look out I never saw one in the Southern Nicobars.

7. *rhodifer* But. Gt. Andaman, N. R. female much scarcer than male. Good series in B. M. and Calcutta. Flies slowly along jungle paths in contrast to the female of *mayo*, its mimic.

9. *hector*, L. A pair were taken by McMillan, very fresh, on 24-6-22, possibly blown to Pt. Blair from Madras. V. R.

* 10. (γ) *aristolochiae goniopeltis* Roth.—Gt. Andaman especially Pt. Blair, a prairie flier and very common. Seasonal dimorphism mentioned by Bingham not apparent.

* (δ) *aristolochiae sawi* Ev.—Car Nicobar, very common, especially at Sawi Bay, the N. E. monsoon landing place. The race is constant for Car Nicobar.

* (4) *aristolochiae camorta*. Very common on Camorta and Nankauri but not found on Kachal only some half dozen miles across the sea.

* (3) *aristolochiae kondulana* Ev. Another constant race, N. R. Taken on Kondul and probably to be found on the rest of the Southern group. In amplification of Evans's description I should say that the ends of the post cellular white spots upf are not convex, and clearly defined as in *goniopeltis* and *sawi* but concave and obscured by a sprinkling of black scales.

A3. CHILASA.

5. (δ) *clytia flavolimbatus* Ob. ♂ N. R. ♀ much scarcer than ♀ March to May in Gt. Andaman males on flowers or sand.

A4. PAPILO.

2. *memon agenor* L.—R. Two males and two females taken in S. Nicobars where the butterfly is frequently seen on the open banks of the Galathea and other big rivers in company with *Danaus nesippus*. Difficult to obtain. The female mimics *Tros coon sambilanga*. One male straggler taken on Car Nicobar and one female on Ross Island, Port Blair. The latter was typically *alcanor* in form and both stragglers were probably blown over from Tenasserim. The two

females from Gt. Nicobar have the white markings uph much reduced and the body almost black in contrast to the yellow body with black stripe of *alcanor*. 3. *mayo*, Atk. Gt. and L. Andaman, males N. R. females scarce but should be got in December. Best locality is the Black Rock path, Mt. Harriet, but any road through jungle has a few males hurrying up and down it. The females on the other hand only leave the jungle on one side to dart across the road and be lost in the jungle on the far side. A mimic of *Tros rhodifer*. Possibly a sub-species of *niemnon*.

23. *fuscus andamanicus* Roth. Gt. Andaman, rather local. The best place is the Rongat stream East of Bomlungta in the M. Andaman. Males N. R. females scarce. March and April.

25. β *polytes stichioides* Ev. Common in open places in the South Andaman. The two forms of female in equal numbers.

γ *polytes nikobarus* Fd. Common on Car Nicobar and Camorta, and taken on Kachal. Females of *polytes* form at Camorta, as one might expect, incline to mimic *Tros camorta*.

A5. PATHYSA.

6. δ *antiphates epaminondas* Ob.—Males common locally in Andamans, females less so. Found with *fuscus* at sand and on flowers. A rapid flier through dense jungle, yet I have never taken a specimen with damaged tails.

A6. ZETIDES.

5. β *eurypylus macronius* Jord. R. taken locally with *fuscus* at sand.

8. γ *agamemnon andamanicus* Lathy. Gt. Andaman, N. R. males fond of flowers in the open. More often seen than caught—a remark which applies to many butterflies.

δ *agamemnon decoratus* Roth. Very common in Car Nicobar, less so in Central Nicobars.

η *agamemnon pulo* Ev. S. Nicobars. Not common and in fact only taken by me after several visits on which I had never seen it. The race has been separated on three males and one female but seems a good one.

B. PIERIDAE

B 1. LEPTOSIA Hub.

Luina nina F. N.C. Extremely local in Port Blair, in fact in the 100 square miles of settlement my collector and I took it only in the neighbourhood of Tusonabad and Cadellganj, to the west of the harbour. Not on the wing for long in the year; my specimens all taken in June except for one in December when there is presumably another brood. No seasonal difference apparent. Mr. Field with four years' experience only took it at Tusonabad and calls it rare.

β *nina nicobarica* Doh. N. R. very local in the Southern Nicobars. My specimens were all taken in March with the exception of one ♀ in September.

B8. BELENOIS Hub.

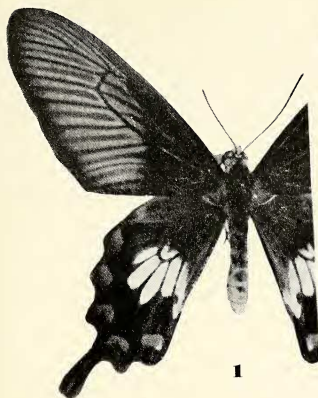
β *mesentina mesentina* Cr. Bingham reports that a dsf specimen was taken in 1903 on the Gt. Nicobar. A straggler.

B9. CEPORA Billberg.

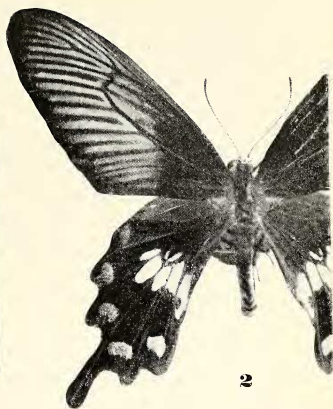
2 γ *nerissa dapha* M. On a brief visit to Tillanchong, Nicobars, in March 1924 I took two dsf♀♀. They may have been stragglers from Burma.

2 δ *nerissa lichenosa* M. Common throughout the year, Gt. and L. Andamans and Gt. Cocos. A distinct dsf occurs for both sexes and also in early wsf ♀ before the full wsf comes in. Sexes equally common.

3 δ *nadina andamana* Swin. Andamans, N.R. like *lichenosa* flies throughout the year. Bingham says there appears to be no dsf. This is true for males but I have a female taken on February 8th with black markings on the upper side very much restricted. Females of this species are not easily come by.



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- (1) *Tros aristolochiæ goniopeltis* Roth. ♂
 (2) " " *sawi* Evans ♂
 (3) " " *camorta* M. ♂
 (4) " " *kondulana* Evans ♂

B10. APPIAS Hub.

4♂ *libythea olferna* Swln. My collectors took 2♂♂ and 3♀♀ dsf and 2♂♂ and 1♀ wsf on Car Nicobar. The fact that both dry and wet forms occur may mean that the butterfly is an occasional migrant from the main land. It is extremely rare in Car Nicobar. No dry season forms occur in the Nicobars normally.

5♂ *lyncida nicobarica* M. Car and Central Nicobars. Common. This females vary considerably in size and in the amount of black on the upper side.

5) *lyncida galbana* Fruh. Southern Nicobars, N.R.

6♂ *albina darada* Fd. The British Museum contained no specimens of this race from the Andamans. I have earlier in this paper described how in 1927 it suddenly appeared in the Andamans in great numbers, at least as regards males. I obtained only seven females of which two were *v. flavalba* Fruh.

If it ever reappears in Port Blair, there will probably be no one there interested in butterflies and able to appreciate the rareness of the visit. The specimens taken are exactly similar to those marked Rangoon in the B. M. I took a pair on the Gt. Cocos in April 1930 similar to Port Blair specimens of 1927. A female obtained in Car Nicobar resembles Tenasserim specimens.

7♂ *paulina galathea* Fd. Common throughout the Nicobars. There appear to be six forms of ♀

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|-------------------------|---|
| 1. upf and uph white | } Each of these three forms may have white or orange below. |
| 2. upf and uph yellow | |
| 3. upf white uph yellow | |

These forms are found flying together and are not peculiar to any island or locality.

9. *panda chrysea* Fruh. Gt. Nicobar is the chief habitat of this most aristocratic of all the local *Pieridae*, and I only once took one on any other of the South Nicobars. The males may be taken on wet-sand on the banks of big rivers like the Galathea, in company with males of *cyrestis tabula*, or if you land in one of the sandy bays look for any little stream whose outlet to the sea is headed up by the sand and you should come across a few of the males of these two species, but not the females which are very rare. At the last of some 12 or 15 landings on different parts of the Gt. Nicobar, which I was able to visit only three times in eight years, I took 3♀♀ of *chrysea* in undergrowth inside the jungle.

The Calcutta Museum has a good series of *chrysea*, males but no females. The B.M. has also had no females.

B11. CATOPSILIA Hub.

1 *crocale* Cr. This is the only *Catopsilia* which approaches being common at Port Blair. I have some 5♂♂ and 10♀♀ from there and one or two from Nankauri. It may be classed N. R.

2 *pomona* F. Andamans R. I have 2♂♂ and 4♀♀ taken in October and April, I have none from the Nicobars.

4 *pyranthe minna* Herbst. N. C. 6♂♂ and 2♀♀ taken in South Andamans and Gt. Cocos between December and May.

5 *florella gnoma* F. Andamans, R. 4 taken between December and March.

B12. GANDACA M.

γ *harina andamana* M. Common everywhere in the Andamans and for the most of the year, but there seem to be two main broods. No seasonal difference.

♂ *harina nicobarica* Ev.—R. taken at Car Nicobar, Nankauri, Gt. and L. Nicobars, in all 7♂♂ and 3♀♀.

B15. EUREMA, Hub.

4 ♀ *blanda silhetana* Wall. Andamans, common January to July.

♂ *blanda moorei* M.—Northern and Central Nicobars, N. R. 6♂♂ from Car Nicobar and 8 from Nankauri, 2♀♀ from Nankauri. The males mostly resemble Bingham's figure (Vol. 11, p. 259), but 5 out of 14 have the black border upf, broader at the apex and show the typical *Eurema* projection of black inwards at V.4. The females much resemble in marking males of *silhetana* from

the Andamans and do not resemble their own males as Bingham states they do, except that their ground colour is not paler than that of the males.

♂ *blanda grisea* Ev. S. Nicobars, N. R. 14 ♂♂ and 2 ♀♀. One or two of the males have the apical markings upf dark enough to make them difficult to separate from *moorei* found at Nankauri but the rest have merely a powdering of dark scales which gives them a grey appearance in decided contrast to *moorei*. The females here again do not resemble their males, except in having minute dots at the ends of the veins uph. The forewing markings are similar to those of *moorei* ♀, but the ground colour is distinctly paler than that of the males.

5 ♂ *hecabe hecabe* L. Andamans V. C. dry season forms occur November to March, upf shows little variation, especially among males.

5 ♂ *hecabe nicobariensis* Fd. Nicobars, V. C. only wet season forms found. They vary considerably, those from the Southern islands being for the most part difficult to separate from Andaman examples of *hecabe hecabe*. The restriction of the border upf is greatest at Chaura and Car Nicobar but not always constant even there. The females especially those from Chaura and Car Nicobar are paler than females of Andaman *hecabe hecabe*.

7 ♂ *anderson andamana* Swin. Andamans N. R.

I found the males common in the M. and S. Andaman in January and took a fair series of females in the S. Andaman in July to October but, it so happened not both sexes at the same time.

B17. IXIAS Hub.

2♂ *pyrene andamana* M. Andamans C, Gt. Coco V. C.

The males have distinct dry season markings in January and February, but I can find no seasonal differences among a series of twelve females. Two pairs from the Gt. Coco, April, are smaller than Andaman specimens.

B19 HEBOMOIA Hub.

♂ *glaucippe roepstorffii* WM. Andamans and Gt. Coco. The males are not rare, one sees one or more on most days, but capturing them is another matter. The females are not common. My collector in spite of encouragement brought me only four in some five years. The males are certainly lighter underneath in the dry season but that is the limit of their dimorphism and the females appear to make no change.

B20 PARERONIA DE N.

2♂ *ceylanica naraka* M. Andamans and Gt. Coco, C. On the wing throughout the year with a specially large November brood. A pair taken on the Gt. Coco show no difference. No seasonal dimorphism.

C. DANAIIDAE

C1 HESTIA Hub.

1♂ *lynceus cadelli* WM. & de N. Andamans, N. R. Named after Colonel Tom Cadell, V. C., for 13 years Chief Commissioner at Port Blair. To be taken most days from December to May in dark jungle where it flops slowly about. A sure place was where the path to Black Rock entered well grown secondary jungle five hundred yards or so from Mt. Harriet House.

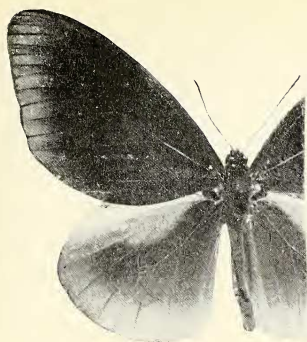
C2 DANAUS Lat.

1 ♂ *aglea melanoleuca* M. Andamans: Common throughout the year, flies weakly in glades and near the ground. Does not, *pace* Bingham, occur in the Nicobars.

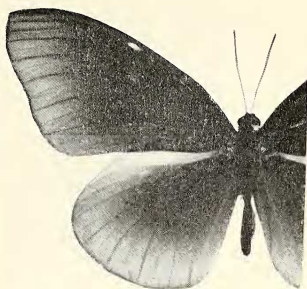
2 *agleoides* Fd. Nicobars, V. C. at Nankauri, not quite so common in the S. Nicobars and I have only two ♂♂ from Car Nicobar.

8 ♂ *similis nicobarica* WM. & de N. Southern Nicobars, N. R. I took it on Pulo Milo and L. Nicobar, but chiefly on the Galathea river and the Laful mountain stream in Gt. Nicobar. Sexes taken in equal numbers. I obtained a good series.

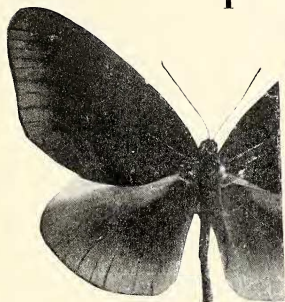
9 *limniace mutina* Fruh. Car and Central Nicobars V. C. To be seen in very large numbers on the top of the bank at Sawi Bay, Car Nicobar and is as



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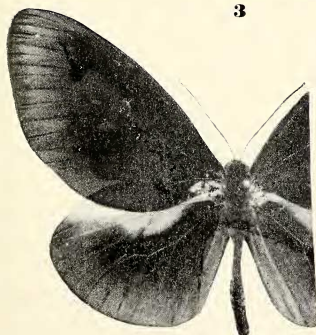
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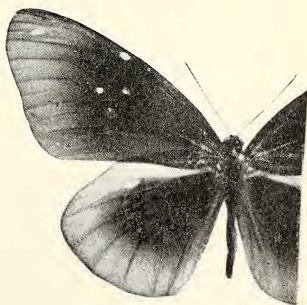
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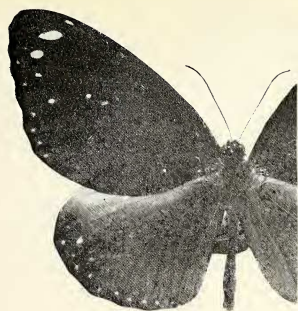


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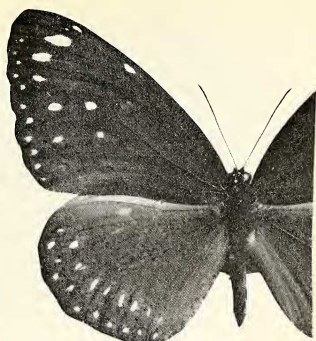


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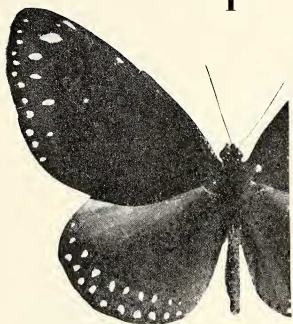
- | | | | |
|-----|----------------------------------|-----|------------------------|
| (1) | <i>Euploea climena scherzeri</i> | Fd. | ♂ |
| (2) | " | " | + |
| (3) | " | " | camorta M. |
| (4) | " | " | + |
| (5) | " | " | simulatrix WM. & de N. |
| (6) | " | " | ♂ |



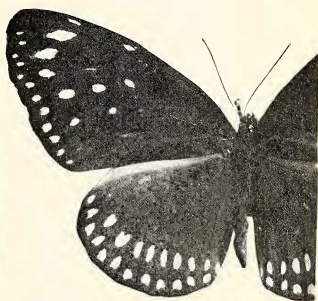
1



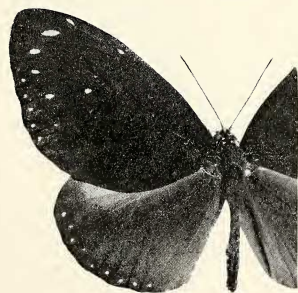
2



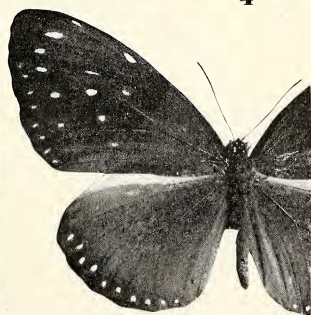
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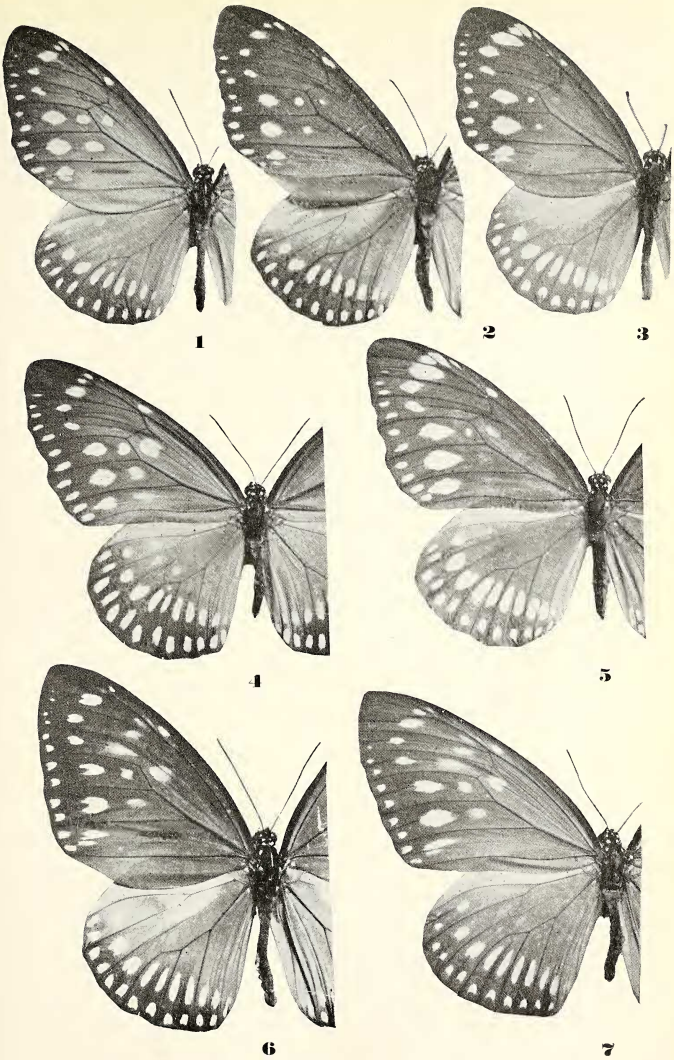


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6

- | | | | | | |
|-----|----------------|----------------|--------------------|-----|---|
| (1) | <i>Euploea</i> | <i>crameri</i> | <i>esperi</i> | Fd. | ♂ |
| (2) | " | " | " | " | ♂ |
| (3) | " | " | <i>biseriata</i> | M. | ♂ |
| (4) | " | " | " | " | ♂ |
| (5) | " | " | <i>frauenfeldi</i> | Fd. | ♂ |
| (6) | " | " | " | " | ♀ |



- | | | | |
|-----|--|---------------------|---|
| (1) | <i>Euploea andamanensis andamanensis</i> | Atk. | ♂ |
| (4) | " | " | ♀ |
| (2) | " | <i>ferrari</i> | ♂ |
| (3) | " | <i>bumila</i> | ♂ |
| (5) | " | " | ♀ |
| (6) | " | <i>roepstorffii</i> | ♂ |
| (7) | " | " | ♀ |

common at Nankauri. Never seen in the South Nicobars. I saw a number of specimens on Gt. Coco in April and took a male. Two stragglers seen at Port Blair in September 1929.

10♂ *melissa septentrionis* But. 4♂♂ taken, one at Port Blair in November and three at Nankauri in December, January and February respectively. I know of two or three more individuals being taken at Port Blair and the butterfly must be considered a regular if rare visitor.

11♂ *gautama gautamoides* Doh. Seems to take the place of *mutina* in the South Nicobars where it is decidedly rare. I took 8♂♂ and 3♀♀ in my 15 or so landings in March and September. No really fresh specimens obtained in these months.

12 *plexippus* L. Port Blair, NR. Nankauri, C. I have one specimen from Kachal and none from the remaining Nicobars. WM and de N record it from Car Nicobar. Taken at Port Blair December to April and in September.

13♂ *melanippus camorta* Ev. Nankauri and probably Kachal, common on the former. The difference between this race and *nesippus* is noticeable and constant.

♂ *melanippus nesippus* Fd. Common along the river banks of the Gt. Nicobar but not seen by me on any other island of the Southern group. As conditions now are, and they will hardly improve, this butterfly must continue with *Appias chrysea* and a few others peculiar to Gt. Nicobar to be common or at least not rare in its own habitat but very uncommon in butterfly collections. I myself only secured five pairs.

14. *affinis malayana* Fruh. I received some 20 specimens of this butterfly from the Tahsildar of Nankauri in 1927 and 1929. I was at first under the impression that his man took them on the east side of Kachal, but he later told me they were obtained on the west side of Camorta. No more were forthcoming and their exact habitat remains unknown. I never saw one on the wing on any of the Central group of the Nicobars at any of my numerous visits. I can accordingly not agree with Brigadier Evans in calling it NR. While the visits of European collectors or their agents remain so infrequent and so fleeting this must remain a rare insect in the Nicobars. The Port Blair administration sends its only ship but two or three times a year to Nankauri and its stay there is a matter of five or six hours.

15. *chrysiptus* L. I took two ♂♂ and four ♀♀ of this elsewhere commonest of butterflies at Port Blair. Should be taken on the slopes above Brookesabad where a few bushes of its food plant, *Calotropis*, have somehow established themselves. One ♂ at Car Nicobar and two ♀♀ at Nankauri. Its mimic, *hypolimnas mysippus* is found in these same localities equally seldom. The Nicobar examples all have the row of white terminal dots on the upper side of the hind wing complete. Also the Port Blair examples without exception have these spots only in interspaces 1 to 4.

C 3. EUPLŒA F.

1. ♂ *mulciber mulciber* Cr. One ♀ straggler was taken on 6th of May 1930 on Mt. Harriet, a fresh specimen presumably blown over from Madras. Bingham gives the Nicobars as a locality. He may have received a straggler or two from Mr. Rodgers.

*3♂ *climena scherzeri* Fd. Car Nicobar, V.C. Evans's key says of *climena* generally 'Above normally unmarked dark velvet brown, outwardly cinnamon.' This description can only be applied to the males of the three races. On Car Nicobar about one in every five males of *scherzeri* has a white spot on the costa; at Nankauri only one *camorta* male out of fifteen is so marked and in the Southern islands *simulatrix* males if spotted have one or two spots at the apex of the wing and never on the costa. The females of all three races invariably have a spot on the costa and generally another near the apex of the cell either inside or in interspace 3. A few females have both these spots present. *Simulatrix* females also frequently have one or two apical spots up similar to those carried by the male. They also may have unh, a terminal row of small white spots in the interspaces.

*♂ *climena camorta* M. Central Nicobars, VC.

*♂ *climena simulatrix* WM & de N. South Nicobars VC.

*6♂ *crameri esperi* Fd. VC. From examination of a long series of forms from Car Nicobar and Nankauri I consider that there is a prime facie case for separation of Nankauri specimens as **crameri biseriata* M. Their general

appearance is invariably much whiter than *esperii* from Car Nicobar or *frauenfeldii* from the Southern Nicobars. One might confuse the two latter with each other so far as the upper sides go, but not the Nankauri form with either.

*♂ *crameri frauenfeldii* Fd. Southern Nicobars. Common but less so than in the other groups.

*9♂ *andamanensis andamanensis* Atk. VC throughout the Gt. Andaman and seen on the Gt. Coco where they appeared normal. On the wing throughout the year. Individuals vary in size and in intensity of ground colour and amount of white marking, but I am unable to couple these variations with the seasons.

*β *andamanensis bumila* Tyt. L. Andaman, VC. Called after Bumila creek on the north of the Little Andaman. Bumila (flies and sand) was the contemptuous name given to the creek by Portman's Andamanese when he explored the island some 60 years ago. The flies remain and pester the visitor and hasten his return to his launch anchored beyond their reach. The beach has behind it a great fresh water lagoon which carries at times quite large numbers of Andaman teal, a fact discovered by me when in search of butterflies. Quantities of *andamanensis bumila* are to be had round the lagoon, also *Spalgis epius nubilis* which is difficult to get in the Gt. Andaman.ingham mentions the Little Andaman form but as usual refuses it status as a race.

*γ *andamanensis ferrari* Tyt On a visit to North Sentinel, I took a few males of *andamanensis* which have differences from the forms of the Gt. and Little Andaman and to which General Tytler has given a separate name. One of the plates accompanying this paper shows a male from each of the three localities.

11. β *harrisi harrisi* Fd. One male straggler at Port Blair in March, taken after a gale.

13γ *corus phoebus* But. Nicobars, V.R. A male taken on Kachal in March and a male and a female taken in January and March respectively at Nankauri.

16β *leucostictos novaræ* Fd. N.R. at Car Nicobar and a few taken at Nankauri. On the former island its mimic *Hypolimnas antilope anomala* Wall. is found locally.

*17 *roepstorffii* M. Andamans, V.R. I have seen this butterfly moving rapidly, in contrast to *andamanensis* of which it is presumably a mimic, but I never myself took one. My collector who was always on the look out for this *Euploea* only took for me some 15 or 16 in six years. They were mostly got on the Rangachang road four or five miles from headquarters at Port Blair. *Andamanensis* is to be seen everywhere on flowers or hovering near them and I never passed by a single one without a good look to be sure it was not *roepstorffii*, but I never met with the latter except when it was in rapid flight.

D. SATYRIDAE

D2. MYCALESIS Hub.

3γ, *anaxias radza* M. R. A rare and local species in the Gt. Andaman. I think it should be found in bamboo jungle for I saw two or three in the bamboo thickets on the east side near the top of Saddle Peak in the North Andaman in April. Mr. Macmullen assured me that it was to be had in the nullahs on the Rangachang road a mile or two north of the plantation, but my collector could never get it there. In eight years he and I took 8♂♂ and 7♀♀. Of these two males alone were fresh, taken in January and April respectively. Most of the 13 other specimens were taken in December and January. Three males taken in April in the North and Middle Andamans though fresh have a distinct dry season appearance underneath, the ocelli being reduced in size. The remaining five males are from the South Andaman. They were all taken in December or January, but four of the five have the full wet season appearance. Of the seven females, all from the South Andaman, one only, a worm specimen taken in May, has the reduced ocelli of a dry season form. The rest taken chiefly in December, have a wet season appearance.

♂ *anaxias manii* Doh. V. R. I have one male and three females from Gt. Nicobar and one female from L. Nicobar. They were taken in rough grass in the coconut groves. April or September.

10γ *mineus nicobarica* M. Nicobars, C.

12γ *visala andantana* M. Andamans C. dsf. December to April, wsf. April to November.

D3. LETHE HUB.

217 *europa nudgara* Fruh. Andamans. N.R. in shady jungle. Taken throughout the year.

215 *europa tamana* deN. Described by de Niceville in 1887 from a female taken on the L. Nicobar. I do not know of any other specimens having been taken. There were none in the Calcutta museum in 1930. I saw a female at Pulo Babi on the Gt. Nicobar.

D. ORSOTRIGENA Wallen.

♂ *medus medus* F. Andamans C. dsf as usual December to March.

♂ *medus nicobarica* Ev. Nicobars, V.C. especially on Camorta.

D22. MELANITIS Fab.

1 *leda ismene* Cr. Andamans V.C. in both wet and dry season forms on rice land. Nicobars V.R. The wet season form appears in very great numbers in September. Before long the dry season form is found flying with it and then continues alone until February. As the rice land dries off the butterfly seems to take to the jungle. I took one male wsf. on Gt. Nicobar in February.

37 *zitenius andamanica* Evans. Andamans V.R. I have only four males and one female, all dsf. The males were taken, one in October, one in December, two in April of which the last one is very fresh. The female was taken in June, very worn. In the cane thickets at Casuarina Bay in the North Andaman I saw a dozen or more on the wing one day in January, but they were very worn and I let them be. No such opportunity occurred again.

D25. ELYMNIA Hub.

2♂ *cottonis cottonis* Hew. Andamans. C. On the wing throughout the year.

3. *panthera minus* WM. & de N. Nicobars. C. especially on Car Nicobar and at Nankauri.

E. AMATHUSIIDAE

E7. AMATHUSIA Fruh.

♂ *phidippus andamanica* Fruh. Middle and South Andamans. R. In eight years only six males and five females taken. These were mostly found at rest in bungalow verandahs where they take cover when the morning daylight gets too strong for them. The 11 individuals caught bear dates from April 1st to May 15th. On Mt. Harriet at 1,200 ft. during the latter half of April this butterfly gets on the wing every evening at ten past six. Any I managed to take with a net were caught at this precise time at the spring 150 ft. below Bungalow No. 3 on the western slope where in my time there was dense shade. A good spot too for skippers. The food plant of *phidippus* elsewhere is the coconut palm, but in the Andamans it must be something else for the coconut is not indigenous. The extensive planting of coconuts during the past 80 years does not appear to have increased the numbers of this butterfly. Only two females and none of the males taken by me have four ocelli unsh, the remainder have three, of which the middle one is often minute.

E10. DISCOPHORA Bdv.

4♂ *continentalis andamanensis* Stg. N., M. and South Andamans. V.R. five males taken in eight years. One in April on the east side of Saddle Peak, two in the South Andaman in April and one in August and lastly one in the Middle Andaman in October. Mr. Field took two females at Aberdeen, South Andaman in May. There is one female with one male in the Calcutta museum, none in South Kensington. The males should be found on damp sand in dark jungle according to de Nicéville.

F. NYMPHALIDAE

F1. CHARAXES Ochs.

2♀ *polyxena agna* M. A female taken in a battered condition at Namunaghar July 1925 almost certainly a straggler from Burma.